## AMENDMENTS TO THE SPECIFICATION
## *(other than claims)*

*Please add the following new paragraph after paragraph [0036]:*

**[0036.1]** Fig. 1 is a sectional diagram representing a GaN substrate having a mirrorlike, planar surface onto which a device-forming film has been epitaxially grown.

*Please add the following new paragraph after paragraph [0036.1]:*

**[0036.2]** Fig. 2 is a sectional diagram corresponding to Fig. 1, but representing the GaN substrate having a complex surface in which the Ga faces and the N faces are exposed in alternation.

*Please replace paragraph [0037] with the following amended paragraph:*

**[0037]** ~~The figure~~ Fig. 3 is a graph plotting the results of measuring residual metal atom density ($\times 10^{10}$ atoms/cm$^2$) on a GaN substrate surface, and the photoluminescence produced by growing epitaxially onto the substrate a GaN layer of 2 $\mu$m thickness and an InGaN layer of 0.2 $\mu$m thickness, and bombarding the substrate with a 325 nm laser beam from a HeCd laser. The horizontal axis is the metal atom density, and the vertical axis is the photoluminescence intensity (arbitrary scale graduations). The photoluminescence desirably is of 2.0 scale graduations or more, which corresponds to a metal atom density of $100 \times 10^{10}$ atoms/cm$^2$.

*Please replace paragraph [0038] with the following amended paragraph:*

**[0038]** The present invention dry-etches the surface of GaN using a halogen plasma, and wet etches the surface using an aqueous solution of hydrogen fluoride + hydrogen peroxide, sulfuric acid + hydrogen peroxide, hydrogen chloride + hydrogen peroxide, nitric acid, hydrogen chloride + ozone, etc., to manufacture mirrorlike-finish GaN wafers 1, as represented in Figs. 1 and 2, with minimal metal contamination and possessing smooth, flat surfaces 3, as indicated in the figures. Thus, in present invention the process-transformed layer generated by the polishing is removed by dry etching, and the clinging metal contamination due to the dry etch is removed by wet etching.

*Please replace paragraph [0045] with the following amended paragraph:*

**[0045]** If metal is left thus clinging to the substrate 1 indicated in Figs. 1 and 2, even if it has a mirrorlike finish 3, the lattice structure of epi-grown GaN or InGaN films, such as film 2 indicated in the figures, atop the surface 3 will be compromised, spoiling the crystallinity. Consequently, if photoreceptors were manufactured, problems such as dark current increasing and degrading the light-emitting efficiency, and if lasers were, the lasing threshold current fluctuating, would be occasioned. In order to avert such problems, residual metal on the substrate 1 surface 3 must be reduced, but doing so by dry etching is impossible—wet etching must be employed.

*Please replace paragraph [0052] with the following amended paragraph:*

**[0052]** Initially the present inventors were uncertain as to what the nature of the crystalline structure of the defect-gathering areas is, but at present understand that the defect-gathering areas seem to be single crystal in which the crystal axis is reversed. Therefore, when *c*-plane crystal is grown by the present applicants' technique, the major portion of the surface is a (0001) Ga face, but the defect-gathering areas in the center of the portions where the seeds were are $(000\bar{1})$ N faces. In other words, the product is not a single crystal, but crystal in which Ga and N faces are intermixed, as indicated in Fig. 2.

*Please replace paragraph [0075] with the following amended paragraph:*

**[0075]** As-grown GaN freestanding single-crystal wafers produced by vapor-phase growth have at last become possible. The present is a situation in which, without carrying out any process on the wafer face, films 2 of GaN, InGaN, AlGaN and the like, as indicated generally in Figs. 1 and 2, are epitaxially grown thereon by MOCVD, MBE or other epitaxial growth technique. GaN surface-processing technology including polishing, etching, lapping has yet to be perfected. The present invention relates to etching. With a process-transformed layer being freshly produced due to earlier-stage polishing, etching is necessary in order to remove the layer. The Ga face of GaN is chemically impenetrable and as a practical matter cannot be etched with chemically active substances.

*Please replace paragraph [0076] with the following amended paragraph:*

**[0076]** Given these factors, the present invention removes the process-transformed layer on the surface of a GaN wafer by dry etching (an RIE method) employing a halogen plasma. Carrying out the dry etching leads to metal particles, metal oxides, and metal silicides clinging freshly to the wafer surface. Because the GaN manufactured by the present applicants is of a complex structure, as indicated in Fig. 2, in which the N faces and the Ga faces are intermingled, chemicals whose etching rates on the Ga face and the N face differ (that have selectivity) are unsuitable.

*Please replace paragraph [0082] with the following amended paragraph:*

**[0082]** Dry etching and wet washing were combined to process a GaN substrate 1, as represented in Figs. 1 and 2. The GaN substrate 1 that was the processed object was 50 mm $\phi$ in diameter and 400 $\mu$m in thickness.

*Please replace paragraph [0134] with the following amended paragraph:*

**[0134]** Given the circumstances, then, a GaN layer, as indicated generally in Figs. 1 and 2, was deposited to a 2 $\mu$m layer thickness onto the undoped GaN substrates 1 as indicated in the figures, and onto that a 0.2 $\mu$m layer of InGaN was deposited, and the photoluminescence of the InGaN layer was examined.

*Please replace paragraph [0136] with the following amended paragraph:*

**[0136]** If the InGaN film 2, as represented generally in Figs. 1 and 2, is of low dislocation density and ideal crystallinity, the impurity level will be minimal and the non-light-emitting transitions will be few; thus the photoluminescence intensity will be strong. That the InGaN 2 formed atop it is low dislocation density, high-quality crystal signifies that the surface of the GaN substrate 1 that is the film's base, being smooth and without metal contamination, is favorable, which means that the base itself is serviceable. Of course, depending on the type of contaminant metal, there ought to be a difference in the influence that is exerted on epitaxially grown layers, but the nature of that difference is not understood. The amount of metal contamination and the photoluminescence alone were investigated, and the relationship between them found.